Space Weather Forecast

Issued on Saturday, 20 November 2021 at 00:42 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: Chance of G1/Minor geomagnetic storms this weekend.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity was Very Low over the last 24 hours, with no significant X-ray flare activity observed. There are two active sunspot regions on the visible disc, both regions are small, weak, magnetically simple, stable and located in the eastern hemisphere.

No Earth-directed Coronal Mass Ejections (CMEs) have been observed in available imagery.

Solar Wind / Geomagnetic Activity: The solar wind speed, as measured by DSCOVR and ACE at L1, started the period at elevated levels, then gradually declined by the end of the period to slightly elevated. The interplanetary magnetic field was weak and very stable, with only weak deflections both positive and negative. Geomagnetic activity was Quiet (Kp 0-2).

Energetic Particles / Solar Radiation: No solar radiation storms have been observed.

Four-Day Space Weather Forecast Summary

Solar Activity: Solar activity is expected to be very low, with a daily slight chance of common-class flares.

Solar Wind / Geomagnetic Activity: There are no Earth-directed CMEs in the current forecast. The next fast stream of solar wind, associated with a coronal hole, is expected to arrive during the second half of day 1 (20th). Geomagnetic activity is expected to be Quiet initially before increasing to predominantly Unsettled to Active (Kp 3-4) later on day 1 (20th), with a chance of isolated G1/Minor (Kp 5) geomagnetic storms. Similar conditions are likely to start day 2 (21st) with coronal hole effects then expected to gradually ease through days 3 and 4 (22nd and 23rd), bringing an eventual return to mainly Quiet conditions by the end of the period.

Energetic Particles / Solar Radiation: No solar radiation storms are expected.

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Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	50	50	20	5
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	1	1	1	1
Very Active	R3 to R5 X	No	1	1	1	1

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	1	1	1	1
Very Active	≥ S3 *	No	1	1	1	1
* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)						

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